It's Time to *Really* "Get Real" About Solar PV, Making a Permanent Seat for This Clean DG Technology at the Power Resource Table

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At the California Power Authority this last year we have worked with State, utility, solar industry, and financial stakeholders to launch an innovative public/private solar partnership. Private parties will install and own solar PV on public buildings, and the host site will sign a long-term power purchase agreement for the solar power at a price competitive with retail rates.

This approach is an important start to a *real* commitment to getting solar PV installed on a large-scale. What California needs is:

- New business models coupling investors with long-term horizons and end users agreeing to buy solar power on the same basis (or better) as conventional power
- A clear strategy for driving down the costs of solar installations
- Five-year, predictable regulatory treatment with a diminishing-sized solar incentive
- Counting solar PV gross power production toward the Renewable Portfolio Standard target, at no cost to ratepayers or utilities if the system received a public subsidy
- Twinning solar PV with demand response to "firm up" the peak resource value

New solar business model. This requires "deep pocket" investors willing to invest for the long-term (or investors valuing tax benefits the first 5 years, who would then sell to another party willing to own depreciated solar assets and collect steady revenue for the next 15+ years). This model works for many investors and could work for utility companies. This cents/ solar kWh model builds customer confidence and facilitates increased market penetration. Standard State contracts in the public domain further support the model's adoption.

Cost reduction strategy. The CPA's program design inherently drives down the underlying installed solar costs, as well as the amount of SGIP incentive needed, to produce a price/kWh competitive with retail rates. The approach tests if larger scale commitments, more cookie-cutter-type installations, and vertical integration can trim costs in the solar "food chain". Important for public policy, we expect smaller SGIP incentives than now typically paid.

- Many solar installations have costs ($9/watt) that claim the maximum $4.50/watt "Level 1" SGIP incentive. Assuming an average 1800-solar hour/year site and a 20-year equipment life, this is equivalent to paying 12.5 cents/solar kWh produced.
- The CPA program requires solar companies to beat a net retail price of 9-15 cents/kWh (depending upon each facility's power demand and tariffs). Even with the solar provider's costs for maintenance and billing, we hope to drive the installed solar cost closer to $6/watt. An incentive of $3/watt is effectively 8.3 cents/kWh – 33% lower than the market average.
- At inland sites with 2000 full solar hours/year, and an expected 25-year life, the incentive is only 6.0 cents/kWh – half the current market average. This approximates many energy

efficiency rebates and competes favorably with the marginal cost of delivered spot market power on warm summer days -- when solar systems operate best.

Five-year, predictable regulatory treatment. State facilities can host at least 60 MW of solar power, while all public buildings might support 250 MW or more. Private sites can increase this 10-fold. However, current net metering rules place a cap of 0.5% of demand, about 250 MW when calculated statewide. We need the CPUC and CEC to establish stable, predictable, and long-term rules that will attract players and capital, and entice public agencies to plan their long-term commitments and pipeline of projects. We need:

- An SGIP incentive that matches the CEC's emerging renewables incentive
- Incentive levels that decline each year on an announced schedule
- Guarantee that the incentive will be available at least 4-5 years ahead (not just through 2007 as current legislation directs)
- Streamlined utility interconnection rules and procedures (to further reduce costs)
- Elimination of the 0.5% limit of electric IOU's demand subject to net metering.

Credit RPS for publicly subsidized solar PV. We must count PV's green electrons toward RPS, at no additional cost to ratepayers. Utilities will meet their RPS goals sooner, and solar power will be part of the solution. It is reasonable for ratepayers who contributed up to 50% of solar costs to get proportional credit for solar PV as part of our renewable portfolio. The green electrons should be "assigned" to the distribution utility's RPS accounting. The solar owner retains title and can seek financial "credits" in any future greenhouse gas market.

Twinning PV and demand response. We should pursue a peak-savings-insurance approach by combining solar PV with demand response options. If intermittent cloud cover, solar system performance, or maintenance issues arise, tandem participation in demand response programs can reduce utility fears of "needle peaks", avoid sensational spot market prices, and protect the customer from the associated peak demand charges.

These are the lessons we have learned so far at the CPA. We look forward to reporting on the success of this innovative approach in the next few months, and continuing our collaboration with the CEC and CPUC to ensure favorable rules for the solar market.